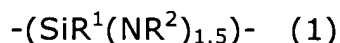


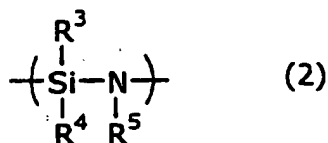
CLAIMS

- [1] A phosphorus-containing silazane composition comprising a polyalkylsilazane and at least one phosphorus compound in an organic solvent.
- [2] The composition according to claim 1, wherein said phosphorus compound is selected from the group consisting of phosphoric esters and phosphazene compounds.
- [3] The composition according to claim 1, wherein said phosphorus compound is tris(trimethylsilyl)phosphate.
- [4] The composition according to any one of claims 1 to 3, wherein said phosphorus compound is contained in an amount of 5 to 100% by mass based on said polyalkylsilazane.
- [5] The composition according to any one of claims 1 to 4, wherein said polyalkylsilazane comprises repeating units represented by general formula (1) and at least one type of units represented by general formula (2) or general formula (3) and has a number average molecular weight of 100 to 50,000:



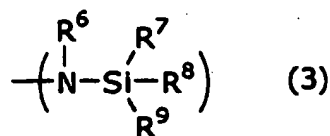
wherein R^1 and R^2 each independently represent a hydrogen atom or an alkyl group having 1 to 3 carbon atoms, excluding the case where R^1 and R^2 simultaneously represent a hydrogen atom;

[Chemical formula 1]



wherein R^3 , R^4 and R^5 each independently represent a hydrogen atom or an alkyl group having 1 to 3 carbon atoms, excluding the case where R^3 and R^4 simultaneously represent a hydrogen atom;

[Chemical formula 2]



wherein R⁶ to R⁹ each independently represent a hydrogen atom or an alkyl group having 1 to 3 carbon atoms, excluding the case where all of R⁷, R⁸, and R⁹ represent a hydrogen atom.

- [6] The composition according to claim 5, wherein, in general formula (1), R¹ represents a methyl group and R² represents a hydrogen atom; in general formula (2), R³ and R⁴ represent a hydrogen atom or a methyl group and R⁵ represents a hydrogen atom; and, in general formula (3), R⁷, R⁸ and R⁹ represent a methyl group and R⁶ represents a hydrogen atom.
- [7] The composition according to claim 5 or 6, wherein said polyalkylsilazane comprises not less than 50%, based on the total number of units represented by general formulae (1), (2) and (3), of repeating units represented by general formula (1).
- [8] A phosphorus-containing siliceous film comprising 0.5 to 10 atomic% of phosphorus and being produced by baking a film of a composition according to any one of claims 1 to 7.
- [9] The phosphorus-containing siliceous film according to claim 8, wherein the specific permittivity is not more than 3.5.
- [10] A phosphorus-containing siliceous filler comprising 0.5 to 10 atomic% of phosphorus and being produced by filling a film of a composition according to any one of claims 1 to 7 into grooves, in which the width of the deepest part is not more than 0.2 μm and the ratio of the depth to the width is not less than 2, and baking the film.
- [11] A process for producing a phosphorus-containing siliceous film comprising coating a composition according to any one of claims 1 to 7 onto a substrate to form a film which is then prebaked at a temperature of 50 to 300°C and

is then baked in an inert atmosphere at a temperature of 300 to 700°C.

- [12] A semiconductor device comprising a phosphorus-containing siliceous film according to claim 8 as an interlayer insulation film.